Appendix 1 : Literature search strategy

**Literature search strategy adapted to Pubmed**

"Tomography, X-Ray Computed"[Mesh] OR "Radiography"[Mesh] OR "radiography"[Subheading] OR "Ultrasonography"[Mesh] OR "ultrasonography"[Subheading] OR "Diagnostic Imaging"[Mesh] OR radiology[Title/Abstract] OR radiograph\*[Title/Abstract] OR ultrasonograph\*[Title/Abstract] OR diagnostic imaging[Title/Abstract] OR tomograph\*[Title/Abstract] OR X-Ray[Title/Abstract] OR "Magnetic Resonance Imaging"[Mesh] OR Magnetic Resonance[Title/Abstract] OR "Image Interpretation, ComputerAssisted"[Mesh] OR "Radiographic Image Interpretation, Computer-Assisted"[Mesh] OR image interpretation[Title/Abstract] OR CT[Title/Abstract] OR x-ray[Title/Abstract] OR MRI[Title/Abstract] OR "Radiology"[Mesh] or ultrasound[tiab]

AND

"Pulmonary Embolism"[Mesh] or Pulmonary Thromboembolism\*[tiab] or Pulmonary Emboli\*[tiab] OR PE[tiab]

AND

"Emergency Service, Hospital"[Mesh] OR "Emergency Medicine"[Mesh] OR "Emergency Medical Services"[Mesh] OR Emergency[Title/Abstract] OR ED[Title/Abstract] OR "Inpatients"[Mesh] OR inpatient\*[tiab] OR "Hospitalization"[Mesh] OR hospitaliz\*[tiab]

AND

"Unnecessary Procedures"[Mesh] OR "Health Services Misuse"[Mesh] OR unnecessary procedure\*[Title/Abstract] OR unnecessary test[Title/Abstract] OR health services misuse[Title/Abstract] OR "Health Services Misuse"[Mesh] OR appropriate use[Title/Abstract] OR inappropriate use[Title/Abstract] OR reduce[Title/Abstract] OR reducing[Title/Abstract] OR appropriate imaging[Title/Abstract] OR inappropriate imaging[Title/Abstract] OR overutilization[Title/Abstract] OR overuse[Title/Abstract] OR appropriateness[Title/Abstract] OR "Medication Alert System\*"[Title/Abstract] OR "order entry system"[Title/Abstract] OR "Medical order Entry Systems"[Mesh] OR "Quality Improvement"[Mesh] OR "Guideline Adherence"[Mesh] OR "Cost-Benefit Analysis"[Mesh] OR "Continuity of Patient Care"[Mesh] OR "Decision Support Systems, Clinical"[Mesh] OR "Efficiency, organizational"[Mesh] OR "Health Care Costs"[Mesh] OR "Medical Informatics Applications"[Mesh] OR "Decision Making, Computer-Assisted"[Mesh] OR "Decision Support Techniques"[Mesh] OR "Information Systems"[Mesh] OR "Radiology Information Systems"[Mesh] OR "Hospital Information Systems"[Mesh] OR "Management Information Systems"[Mesh] OR "Medical OR der Entry Systems"[Mesh] OR "Automatic Data Processing"[Mesh] OR "Medical Informatics"[Mesh] OR "Public Health Informatics"[Mesh] OR "Health Care Cost"[tiab] OR "organizational efficiency"[tiab] OR "Education, Continuing"[Mesh] OR "Pamphlets"[Mesh] OR "Advance Directives"[Mesh] OR "Guideline Adherence"[Mesh] OR "Reminder Systems"[Mesh] OR "Feedback"[Mesh] OR "Medical Audit"[Mesh] OR pamphlet\*[tiab] OR feedback[tiab] OR audit[tiab] OR workshop[tiab] OR education[tiab] OR poster[tiab] OR "Decision Support"[tiab] OR diagnos\*[Title/Abstract] OR "Diagnosis"[Mesh] OR "diagnosis"[Subheading] OR "Diagnosis, Computer-Assisted"[Mesh]

NOT (((("Child"[Mesh]) OR "Infant"[Mesh])) NOT "Adult"[Mesh])

AND (("english"[Language] OR "french"[Language]))

Syntax:

/ denotes MeSH descriptor

\* indicates truncation

[tiab] / [Title/Abstract] searches for title, abstract

[ot] / [Other Term] includes author-supplied keywords

**Literature search strategy adapted to MEDLINE**

1. Pulmonary Embolism/

2. ((pulmonary adj2 embolism) or (lung adj2 embolism)).tw,kw.

3. ((pulmonary adj2 thromboembolism) or (lung adj2 thromboembolism)).tw,kw.

4. 1 or 2 or 3

5. "Unnecessary Procedures"/ or "Health Services Misuse"/ or "Health Services Misuse"/

6. ((unnecessary adj2 procedure\*) or (unnecessary adj2 test\*) or (services adj2 misuse) or reduce or reducing or (appropriate adj2 imaging) or (inappropriate adj2 imaging) or overutilization\* or appropriateness).tw,kw.

7. "appropriate use".tw,kw.

8. "inappropriate use".tw,kw.

9. "Medical order Entry Systems"/ or "Quality Improvement"/ or "Guideline Adherence"/ or "Cost-Benefit Analysis"/ or "Continuity of Patient Care"/ or "Decision Support Systems, Clinical"/ or "Efficiency, organizational"/ or "Health Care Costs"/ or "Medical Informatics Applications"/ or "Decision Making, Computer-Assisted"/ or "Decision Support Techniques"/ or "Information Systems"/ or "Radiology Information Systems"/ or "Hospital Information Systems"/ or "Management Information Systems"/ or "Medical order Entry Systems"/ or "Automatic Data Processing"/ or "Medical Informatics"/ or "Public Health Informatics"/ or "Education, Continuing"/ or "Pamphlets"/ or "Advance Directives"/ or "Guideline Adherence"/ or "Reminder Systems"/ or "Feedback"/ or "Medical Audit"/

10. (medication alert system\* or (entry adj2 system) or health care cost or (organizational adj2 efficiency) or pamphlet\* or feedback or audit or workshop or education or poster or Decision Support Systems).tw,kw.

11. overuse.tw,kw.

12. protocol adherence.tw.

13. (optimize or performance).ti.

14. guideline adherence.tw.

15. Diagnosis/ or Diagnosis, Computer-Assisted/

16. diagnosis.tw.

17. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16

18. Emergency Service, Hospital/

19. emergency patient/ or emergency medicine/ or emergency physician/

20. Inpatients/

21. Hospitalization/

22. (emergency or inpatient or hospitaliz).tw,kw.

23. 18 or 19 or 20 or 21 or 22

24. (radiology or radiograph\* or ultrasonograph\* or ehocardiograph\* or mass screening or tomograph\* or X-Ray or magnetic resonance or (image adj2 interpretation) or CT or x-ray or MRI or imaging or ultrasound).tw,kw.

25. "Radiology"/ or "Radiography"/ or "Radiology Department, Hospital"/ or "Ultrasonography"/ or "ultrasonography".fs. or "Diagnostic Imaging"/ or "Mass Screening"/ or "Tomography, X-Ray Computed"/ or "Magnetic Resonance Imaging"/ or "Image Interpretation, Computer-Assisted"/ or "Radiographic Image Interpretation, Computer-Assisted"/

26. Tomography Scanners, X-Ray Computed/ or Magnetic Resonance Imaging/ or Image Processing, Computer-Assisted/

27. 24 or 25 or 26

28. 4 and 17 and 23 and 27

29. limit 28 to (english or french)

30. limit 29 to ("all infant (birth to 23 months)" or "all child (0 to 18 years)")

31. 29 not 30

Syntax:

/ indicates MeSH descriptor

\* indicates truncation

fs indicates floating subheadings

tw denotes “text word” and includes title and abstract fields

kw searches for keywords

adj2 searches for 2 terms within 2 words from each other, in any order.

**Search strategy adapted to Embase**

1. radiology/

2. radiology department/

3. echography/

4. imaging/

5. diagnostic imaging/

6. computer assisted tomography/

7. computer assisted tomography/ or radiography/ or thorax radiography/

8. nuclear magnetic resonance imaging/

9. nuclear magnetic resonance/

10. mass screening/

11. ultrasound/

12. PET-CT scanner/ or PET-MRI scanner/ or portable computed tomography scanner/ or CT SPECT scanner/ or PET scanner/ or computed tomography scanner/ or portable ultrasound scanner/ or ultrasound scanner/

13. (radiology or radiograph\* or ultrasonograph\* or (mass adj2 screening) or tomograph\* or X-Ray or Magnetic Resonance or (image adj2 interpretation) or CT or x-ray or MRI or imaging or ultrasound).tw,kw.

14. or/1-13

15. lung embolism/

16. ((pulmonary adj2 embolism) or (lung adj2 embolism)).tw,kw.

17. ((pulmonary adj2 thromboembolism) or (lung adj2 thromboembolism)).tw,kw.

18. or/15-17

19. emergency health service/

20. emergency patient/ or emergency medicine/ or emergency physician/

21. hospital patient/

22. hospitalization/

23. (emergency or inpatient or hospitaliz).tw,kw.

24. or/19-23

25. unnecessary procedure/

26. inappropriate prescribing/

27. ((unnecessary adj2 procedure\*) or (unnecessary adj2 test\*) or (services adj2 misuse) or reduce or reducing or (appropriate adj2 imaging) or (inappropriate adj2 imaging) or overutilization\* or appropriateness).tw,kw.

28. "appropriate use".tw,kw.

29. "inappropriate use".tw,kw.

30. computer assisted diagnosis/ or diagnosis/

31. hospital information system/

32. "cost benefit analysis"/

33. decision support system/

34. "health care cost"/

35. medical informatics/

36. information processing/

37. continuing education/

38. medical audit/

39. feedback system/

40. reminder system/

41. (medication alert system\* or (entry adj2 system) or health care cost or (organizational adj2 efficiency) or pamphlet\* or feedback or audit or workshop or education or poster or Decision Support Systems).tw,kw.

42. decision support system/

43. diagnosis.tw.

44. guideline adherence.tw.

45. computerized decision support.tw,kw.

46. performance/

47. (optimize or performance).ti.

48. overuse.tw,kw.

49. protocol adherence.tw.

50. or/25-49

51. 14 and 18 and 24 and 50

52. limit 51 to (embase and (english or french))

53. (infant/ or child/) not adult/

54. 52 not 53

Syntax:

/ indicates exact subject heading

\*/ denotes Focus on exact subject heading

tw denotes “Text word” field, which includes Title (TI), Abstract (AB) and Drug Trade Name (TN).

kw searches for keywords

adj2 is the adjacent operator

\* indicates truncation

**Search strategy adapted to EBM reviews**

1. Pulmonary Embolism/

2. ((pulmonary adj2 embolism) or (lung adj2 embolism)).tw,kw.

3. ((pulmonary adj2 thromboembolism) or (lung adj2 thromboembolism)).tw,kw.

4. 1 or 2 or 3

5. "Unnecessary Procedures"/ or "Health Services Misuse"/ or "Health Services Misuse"/

6. ((unnecessary adj2 procedure\*) or (unnecessary adj2 test\*) or (services adj2 misuse) or reduce or reducing or (appropriate adj2 imaging) or (inappropriate adj2 imaging) or overutilization\* or appropriateness).tw,kw.

7. "appropriate use".tw,kw.

8. "inappropriate use".tw,kw.

9. "Medical order Entry Systems"/ or "Quality Improvement"/ or "Guideline Adherence"/ or "Cost-Benefit Analysis"/ or "Continuity of Patient Care"/ or "Decision Support Systems, Clinical"/ or "Efficiency, organizational"/ or "Health Care Costs"/ or "Medical Informatics Applications"/ or "Decision Making, Computer-Assisted"/ or "Decision Support Techniques"/ or "Information Systems"/ or "Radiology Information Systems"/ or "Hospital Information Systems"/ or "Management Information Systems"/ or "Medical order Entry Systems"/ or "Automatic Data Processing"/ or "Medical Informatics"/ or "Public Health Informatics"/ or "Education, Continuing"/ or "Pamphlets"/ or "Advance Directives"/ or "Guideline Adherence"/ or "Reminder Systems"/ or "Feedback"/ or "Medical Audit"/

10. (medication alert system\* or (entry adj2 system) or health care cost or (organizational adj2 efficiency) or pamphlet\* or feedback or audit or workshop or education or poster or Decision Support Systems).tw,kw.

11. overuse.tw,kw.

12. protocol adherence.tw.

13. (optimize or performance).ti.

14. guideline adherence.tw.

15. Diagnosis/ or Diagnosis, Computer-Assisted/

16. diagnosis.tw.

17. 5 or 6 or 7 or 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16

18. Emergency Service, Hospital/

19. emergency patient/ or emergency medicine/ or emergency physician/

20. Inpatients/

21. Hospitalization/

22. (emergency or inpatient or hospitaliz).tw,kw.

23. 18 or 19 or 20 or 21 or 22

24. (radiology or radiograph\* or ultrasonograph\* or ehocardiograph\* or mass screening or tomograph\* or X-Ray or magnetic resonance or (image adj2 interpretation) or CT or x-ray or MRI or imaging or ultrasound).tw,kw.

25. "Radiology"/ or "Radiography"/ or "Radiology Department, Hospital"/ or "Ultrasonography"/ or "ultrasonography".fs. or "Diagnostic Imaging"/ or "Mass Screening"/ or "Tomography, X-Ray Computed"/ or "Magnetic Resonance Imaging"/ or "Image Interpretation, Computer-Assisted"/ or "Radiographic Image Interpretation, Computer-Assisted"/

26. Tomography Scanners, X-Ray Computed/ or Magnetic Resonance Imaging/ or Image Processing, Computer-Assisted/

27. 24 or 25 or 26

28. 4 and 17 and 23 and 27

29. limit 28 to (english or french)

30. limit 29 to ("all infant (birth to 23 months)" or "all child (0 to 18 years)")

31. 29 not 30

Syntax:

/ indicates exact subject heading

ti denotes title

ab denotes abstract

\* indicates truncation